WHAT IS CLAIMED IS:

1. A laser device with an optical fiber containing a laser activating substance inside for emitting a laser beam from a distal end portion thereof, a part of said optical fiber being fixed in a dense state by an optical medium,

wherein the optical medium is an organic-inorganic hybrid material having a 400°C or lower curing temperature, and

further wherein once the optical medium is cured, a thermal decomposition starting temperature is 300°C or higher, a refractive index lies between 1.40 to 1.56 by an exciting light wavelength capable of exciting the laser activating substance, and a transparency loss is 0.5 dB/cm or less.

2. A laser device with an optical fiber containing a laser activating substance inside for emitting a laser beam from a distal end portion thereof, a part of said optical fiber being fixed in a dense state by an optical medium, wherein

the optical medium is an organic-inorganic hybrid material including a repeating unit represented by a general formula $RSiO_{1.5}$,

further wherein R is selected from an alkyl group, a hydroxyl group, a phenyl group, a vinyl group, a 2-chloroethyl group, a 2-bromoethyl group, a hydrogen, a heavy hydrogen, a fluorine, and an oxygen, said R with entire oxygen being excluded, said R in each repeating unit being permitted to be different.

3. A laser device with an optical fiber containing a laser activating substance inside for emitting a laser beam from a distal end portion thereof, a part of said optical fiber being fixed in a dense state by an optical medium, wherein

the optical medium contains an oligomer or a polymer including at least one member selected from a group consisting of a polymethyl silsesquioxane, a polymethyl-hydride silsesquioxane, a polyphenyl silsesquioxane, a polyphenyl-methyl silsesquioxane, a phenyl silsesquioxane-dimethyl siloxane copolymer, a polyphenyl-vinyl silsesquioxane, polycyclohexyl silsesquioxane, a polycyclopentyl silsesquioxane, a polyhydride silsesquioxane, a poly(2-chloro ethyl) silsesquioxane, and a poly(2-bromo ethyl) silsesquioxane, or a mixture of said at least one member and a polysiloxane.

4. A laser device with an optical fiber containing a laser activating substance inside for emitting a laser beam from a distal end portion thereof, a part of said optical fiber being fixed in a dense state by an optical medium, wherein

the optical medium contains an amorphous silica produced by curing at least one member selected from a group consisting of a poly(2-chloro ethyl) silsesquioxane, a poly(2-bromo ethyl) silsesquioxane, and a mixture thereof.

5. The laser device according to any of claims 1 to 4, wherein the optical fiber is wound in a spiral shape or a coil-like shape.

6. The laser device according to any of claims 1 to 4, wherein the optical fiber is fixed in a bundled state.

7. The laser device according to any of claims 1 to 4, wherein a flat surface is formed on a side surface of the optical fiber such that the optical fiber is fixed in the state with the flat surface closely contacted with one another.

8. A light signal amplifying device comprising the laser device according to any of claims 1 to 4, having another distal end portion of the optical fiber of the laser device as an input end of a signal light, and the distal end portion as an output end of an amplified light.